CLAIMS

1. A method for determining whether an individual, which is a mammal or bird, is experiencing changed physiological status arising from exposure to a psychological stressor, the method comprising:

(a) contacting a test sample comprising neutrophils obtained from said individual with an inducer capable of stimulating superoxide production in neutrophils, under conditions suitable for such stimulation;

(b) determining the increase in superoxide production above basal in said test sample after a time period when neutrophils of the same species in a control sample, which are free or substantially free of stress-induced activation or at least derived from one or more individuals exposed to the same regime minus a factor to be tested as a psychological stressor, will exhibit superoxide production under the same *in vitro* conditions; and

(c) comparing the increase in superoxide production above basal observed in said sample with the increase in superoxide production above basal observed in a control sample as defined in (b) above under the same conditions;

wherein lower superoxide production in said test sample is indicative of the effect of a psychological stressor on the individual's physiological status.

2. A method according to claim 1 for determining the coping capacity of an individual for exposure to a psychological stressor, wherein prior to step (a) said individual is exposed to said psychological stressor for a time period whereby neutrophils in an individual of the same species who is susceptible to stress induced by said stressor will exhibit increased superoxide production and wherein the degree of further *in vitro* induced superoxide production in said test sample above basal determined in step (c) is a measure of coping capacity.

3. A method according to claim 1 or claim 2 wherein said sample comprises isolated leucocytes

4. A method according to claim 1 or claim 2 wherein said sample is a whole blood sample.

5. A method according to any one of claims 1 to 4, wherein the individual is human.

6. A method according to any one of claims 1 to 4 wherein the individual is a bird, such as a chicken.

7. A method according to any one of claims 1 to 4 wherein the individual is a farmed animal, such as a cow, pig, sheep, lamb or poultry.

8. A method according to any one of claims 1 to 4 wherein the individual is a wild mammal.

9. A method according to any of the preceding claims, wherein the inducer capable of stimulating superoxide production in neutrophils is phorbol myristate acetate (PMA), N-Formyl-Met-Leu-Phe (fLMP chemotactic peptide), zymosan, lipopolysaccharide or adrenaline.

10. A method according to any of the preceding claims, wherein superoxide production is detected using luminol or isoluminol as an amplifier and the resulting chemiluminescence is measured.

11. A method according to claim 1 or claim 2, wherein the inducer capable of stimulating superoxide production in neutrophils is phorbol myristate acetate (PMA), superoxide production is detected using luminol as an amplifier and the resulting chemiluminescence is measured.

12. A method of screening for a stress-relieving drug, the method comprising:

(a) administering a test compound to an individual;

(b) exposing said individual to a psychological stressor and measuring their coping capacity using a method according to claim 2; and

(c) comparing their coping capacity after administration of the test compound to their coping capacity in the absence of the test compound, wherein an increase in coping capacity after administration of the test compound is indicative of stress-relieving ability of said test compound.

13. A method according to claim 12, wherein the individual is a non-human mammal.

14. A method according to claim 12 or claim 13, further comprising synthesizing a stress-relieving drug identified by said method, and/or formulating the drug into a pharmaceutical composition.

15. Use of a stress-relieving drug in the manufacture of a medicament for treating an individual who has been identified as suffering stress using a method according to any of claims 1 to 11.

16. A method of treating an individual suffering from stress which comprises providing a stress-relieving treatment, such as administering a stress-relieving drug, to an individual identified as suffering from stress using a method according to any one of claims 1 to 11.

17. A method of testing the efficacy of a proposed stress-relieving treatment which comprises exposing an individual to a psychological stressor in the presence and absence of said treatment and determining their coping capacity in accordance with any one of claims 2 to 11.

18. A method as claimed in claim 1 wherein the control sample is replaced by a test sample comprising neutrophils taken from a second individual, the test samples being taken from different individuals at the same time point before,

during, or after subjection to two different regimes to be compared as stressors, and wherein the superoxide production above basal determined for each sample is adjusted to take account of differences in white cell count or neutrophil count in the samples.

19. A method for comparing two regimes as stressors wherein a method according to claim 18 is repeated at several time points employing samples from more than one individual subjected to each regime.

20. A method as claimed in claim 18 or claim 19 wherein the regimes to be compared are protocols for medical treatment.

21. A method as claimed in claim 18 or claim 19 wherein the regimes to be compared are a known stressful regime plus and minus a proposed stress-alleviating treatment.

22. A device for a carrying out a method according to claim 1 comprising a portable chemiluminometer and system for analysing the results to provide a stress measurement.